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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,531	02/27/2002	Houng Joong Kim	381NP/50960	6394

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EXAMINER

ELKASSABGI, HEBA

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,531

Applicant(s)

KIM ET AL.

Examiner

Heba Elkassabgi

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-26, 29 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 27, 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-9, 10-13, 16-17, 18, 21-26, 29 are rejected under 35 U.S.C. 102(a) as being anticipated by Joong et al. (U.S. Patent Application 2002/0117933 A1).

Joong et al. illustrates in Figure 2 and 3 a stator (10) having primary windings (11) and a rotor (20A and 20B) having first and second field magnets (21A and 21B) on a shaft (22). A first and second field magnets (21A and 21B) have a polarity of magnetic poles that are sequentially arranged in a rotating direction. The second field magnet is shifted in an axial and rotating direction by a mechanism (60) with respect to the first field magnet (21A). A composite magnetic field of the first and second field magnets is changed with respect to the magnetic pole of the first field magnet (21A) depending on a direction of the torque. Which comprises a means of making magnetic poles centers of equal polarity of the first and second field magnets (21A and 21B) in a phase by a direction of torque that is generated in the rotor (20) and by balance of a magnetic action force between the first and second field magnets (21A and 21B). The means of changing the composite magnetic field of the first and second field magnets (21A and 21B) when the direction of torque is generated in the rotor (20) is reversed.

Furthermore, the first and second field magnets (21A and 21B) are opposite to the magnetic poles of the stator. A plurality of supporting mechanism (40A and 40B) is capable of guiding a rotational motion and reciprocal motion and that the composite motion of a second field magnet (21B) is arranged between the second field magnet (21B) and the shaft (22). The field magnets (21A and 21B) have screw functions that are connected to each other by forming a bolt screw portion (60) in the shaft (22) and a nut portion (62) inside the second field magnets (21B) and further having a stopper (24) at a portion apart from a side surface of the first field magnet (20B). The stopper (24) has a servomechanism that is capable of moving the stopper (24) in parallel to the shaft (22) according to the needed rotating speed of the motor. A sleeve (41) is inserted between the inside of a second field magnet (21B) and the shaft (22) to fix the second field magnet (21b) to the sleeve (41). Additionally, In figure 7 there is a control unit (31) for controlling the positional shift of the magnetic poles of the first field magnet (21A) and the second field magnet (21B). A lead angle of a current supply by a control unit (310 for controlling an inverter (104) is corrected by corresponding to a positional shift angle of a composite magnetic pole of the first field magnet (21A) and the second field magnet (21B). Figure 11 illustrates a depressed portion (53) that is formed on a side surface of a first field magnet (20A) in which the first and second field magnets (20A and 20B) are in contact with each other in which a sleeve is formed (54) that projects from the second field magnet (20B). Additionally, Figure 11 indicates a plurality of springs (48 and 51) that are arranged before and after the second field magnet to guide the rotational motion and the reciprocal motion and the composite motion of the second

filed magnet. Furthermore, Figure #15 illustrates that an air gap (GAP2) between a rotor of a second field magnet (20B) and stator (10) is larger than an air gap (GAP1) between a rotor of the first filed magnet (20A) and stator (10). Figure #17 the stopper (24) is at a side surface of the second filed magnet (20B) and that the stopper (24) is supporting has a supporting mechanism (actuator) (25) for guiding the rotational and composite motion of the second field magnet to the shaft (22). And that having the position of the magnetic pole centers of the first and second filed magnets (20A and 20B) in a phase during the operation of one revolution speed and out of phase during the operation at another revolution speed in order to operate the motor at the rotational speed.

In regards to dependent claim #9, Joong et al. discloses the claimed invention except for the non-magnetic material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a suitable material of the sleeve, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter obvious design choice. *In re Leshin*, 125 USPQ 416.

Allowable Subject Matter

Claims 14, 15, 27 and 28 are allowed over the prior art.

Claims 14 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art does not disclose a stopper and a servomechanism that are provided inside of a second field magnet.

Claims 15 and 28 are objected to as being independent upon rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose an electric motor that is operated by making positions of the magnetic pole centers of the first filed magnet and second filed magnet in a phase during low speed operation, and that by making the positions of the magnetic pole centers of the first field magnet and the second field magnet out of phase during high speed and low load operations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HYE
June 21, 2003

